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Architectural Design Quality in Local Authority Private Finance Initiative Projects

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Abstract

Since the 1990s, when the Private Finance Initiative was developed as the primary method for delivering major public capital projects, there has been concern about the quality of many of the products. Initially, it was the architectural community that raised doubts, but it has subsequently been joined by user groups. As the contractual period is over 30 years, there are issues such as ongoing maintenance, facilities management and operational factors, that need to be balanced with design quality. This paper will report on a research project being carried out with a metropolitan local authority in England, which is replacing its entire sheltered housing stock in one Private Finance Initiative project. The principal aim of the local authority is that it should receive these buildings as assets, rather than liabilities at the end of the 30 year period. The research work to date has been based on two stages of a three stage selection of the preferred bidder from the original six consortia.

The aims of this paper are to review the Private Finance Initiative management processes in relation to architectural design quality at each of the selection stages, including the generation and application of the design assessment criteria, and the role of user groups; and evaluate the outcomes against the objectives of maximising design quality within workable financial models. The methodology is that the researcher is based in the local authority project team, and has therefore been able to use participant observation techniques in the management processes, which include competitive dialogue and user consultation. The design assessment criteria were developed from the academic literature and refined at each selection stage. A comparative analysis of the design assessment criteria with intermediate and final designs, will assist in identifying the status of design quality in the selection of the preferred bidder.

Keywords: Private Finance Initiative, Local Authority, Design Quality, Process Management, Sheltered Housing

Introduction

When the Conservative Government launched the Private Finance Initiative (PFI) in 1992, it had two principal objectives. The first was to reduce public sector expenditure and the second was to transfer risk to the private sector. PFI is like no other type of procurement, as private consortia bid to construct and operate a facility for up to 30 years. The Labour Opposition labelled it totally unacceptable, proclaiming it to be an extension of the privatisation of public services (Shaw 2007). Upon being elected to Government, Labour set up a review. The resulting report enabled the Government to declare that the Private Finance Initiative was now able to provide:

- investment in the public infrastructure that would not otherwise have been possible
- greater value for money
- higher quality projects (Robinson 1998)

The aims of this paper are to review the Private Finance Initiative management processes in relation to architectural design quality at each of the selection stages, including the generation and application of the design assessment criteria, and the role of user groups; and evaluate the outcomes against the objectives of maximising design quality within workable financial models.

1. Methodology

The methodology was driven by three specific literature reviews:

- Critique of PFI, and proposals for improving design quality
- Survey of existing design quality evaluation tools and analysis of the Design Quality Indicator
- Identification of elements in sheltered housing, including statements and criteria for quality assessment; and development of the tool

A university researcher is based in the local authority project team, and has therefore been able to use participant observation techniques in the management processes, which include competitive dialogue and user consultation. The design assessment criteria were developed from the academic literature and refined at each selection stage. A comparative analysis of the design assessment criteria with intermediate and final designs, will assist in identifying the status of design quality in the selection of the preferred bidder.

2. Critique of PFI, and Proposals for improving Design Quality

3.1 Critique

Quality can be an elusive term but the Royal Fine Art Commission did not shrink from expressing its reservations in relation to PFI. It stated that there are inherent dangers in concentrating responsibility for designing, building, financing and operating a building in one service provider. Of course, it continued, the architect will be an integral member of the provider's team, but he will most probably be a low-ranking one. Therein lies a serious danger – if the brief is filtered through intermediaries whose interests lie elsewhere, then the prospects for high quality architecture must surely be reduced (Fawsley 1997). The Royal Fine Art Commission was succeeded as the Government's Adviser on Architecture, by the Commission for Architecture and the Built Environment (CABE) in 1999. If the sponsoring Government Departments thought that the change would alleviate criticism, they were in

for a shock. The new Commission was almost as unequivocal as its predecessor had been. It noted that the UK is witnessing the largest public sector construction programme for a generation, through three preferred procurement routes: Design and Build, Prime Contracting and the Public Finance Initiative. It then added that the vast majority of PFI buildings commissioned to date have not been designed to a high enough standard and public service delivery has suffered as a result. CABA affirmed that it believed further qualitative improvement was urgently needed (CABA 2005). The architectural community had been suspicious of these new forms of procurement from their inception. It could be argued that it was because the architects' influence was being diminished by them. The most extensive experience in this procurement method has been in primary health care and secondary education. PFI in housing has taken much longer to become established and therefore does not have the same body of user feedback. However, pressure groups have little doubt that the products are becoming increasingly unpopular with tenants. It is recognised that pressure groups are not unbiased sources of data. Yet, they are keen to verify the facts, in fear of losing credibility with Government (<http://www.defendcouncilhousing.org.uk>).

2.2 Proposals

The Commission for Architecture and the Built Environment had already started its rearguard action. In the same publication that it had criticised PFI, it stated that improvements in design quality can be made by studying design exemplars; including design criteria in output specifications; appointing client design advisers - specifically a design champion, independent adviser and user group; and undertaking post-occupancy evaluation and feeding the data into future briefing documents and output specifications (CABA 2005). Within two years a Treasury Taskforce (2007) published its technical note on how to achieve design quality in PFI projects. The stated aim was to assist public sector procurers to ensure the highest design quality solutions. It highlighted three areas for attention. The first was the management of the relationships with bidders, with the introduction of the competitive dialogue procedure. Secondly, was the provision of clear information early in the competition about what is required and how bids will be evaluated; and thirdly, was the need to ensure that design requirements are consistent with the budget available for the project. The Government was seeking a much changed process; one which it hoped would answer the critics about the design quality of PFI projects. Arguably the biggest procedural change was in the management of relationships with bidders. The new procedure became known as competitive dialogue, and had been introduced following an EU Directive (2004/18/EC) to enable contracting authorities to discuss all aspects of proposed contracts with the candidates. Such dialogue had not been possible under the previous restricted procedures. In principle, dialogue was to be allowed with consortia to identify and define solutions required by the authority; and may be conducted in successive stages with the aim of reducing the number of bidders. Under the new provisions, an authority can also discuss bidders' proposals for solutions, provided all bidders are treated equally (Office of Government Commerce 2006). At last, authorities could discuss design quality with bidders during the process.

3.3 Application

The ageing population represents one of the most extraordinary social transformations that has characterised and will continue to characterise British society. The heightened hope of living longer and the increase in the number of elderly citizens represents a challenge for all local authorities. North Tyneside Council, a large metropolitan local authority in the north east of England, faces a radical social change with housing stocks that are unlikely to meet future needs. Therefore the

Council included in its strategic plan (North Tyneside Council 2007) provision to replace its existing sheltered housing schemes with 13 new build developments and 12 refurbishments. The programme represents both an increase in the quantity and quality of provision. The only feasible method of funding this huge transformation is through the Private Finance Initiative. The project will cost in excess of £100m over 30 years, including operation and maintenance, by bringing together Government grants and private sector funding to improve public services. From the beginning, the Council was keen to produce high quality buildings. The first priority was to act on the key roles that had been recommended by both CABA (2005) and the Office of Government Commerce (2007).

The design champion does not need to have experience of construction projects but must have the presence within the project to keep design quality as a vital shared goal and will need to learn about design issues that are relevant to the project. The role is to articulate the vision and desire for high quality design; formulate the authority's aims and ensure they are clearly stated in the briefing documents; define, check and evaluate quality throughout the process; and insist that quality is maintained throughout the project (Office of Government Commerce 2007). The Council responded by appointing the Deputy Elected Mayor to the role; stating that its Design Champion will be committed to design quality in its broadest sense. It continued that good design is not an optional extra; it has to combine **fitness for purpose** with the building's whole-life costs, to deliver value for money.

For definition and review of design quality, an adviser from one or more of the design professions relevant to the project may be needed. Advisers with other skills may also be required but should not be assumed to be qualified to advise on design (Office of Government Commerce 2007). The Council approached the Architecture Group at Northumbria University. It soon became apparent that a full-time researcher would be needed to work in the local authority Project Team. This was achieved through a Knowledge Transfer Partnership, in which the researcher is supervised by two members of staff from the Architecture Group.

According to both CABA (2005) and the Office of Government Commerce (2007) users should be directly consulted. A panel to represent different user groups (such as residents, occupants, staff, visitors) should be set up to gather information about user requirements as well as communicating progress. North Tyneside Council established a Users' Group comprising the Assistant Project Manager and Lead Communication Officer (from the authority), a Tenant Focus Group (8 members) from local authority sheltered homes in North Tyneside, representatives of the local community over 50 years of age (4 members), representative of North Tyneside Coalition for Disabled People, manager of the local Alzheimer Society, representative of the Coalition for Older People and a representative of the Primary Care Trust. At an intermediate stage in the process, a focus group of 7 younger future tenants (30-55 years old) was added for consultation on the designs by the remaining bidders.

The researcher undertook the study of design exemplars, including the design-award winning Plas Y Mor (fig. 1) and will undertake the post-occupancy evaluation. This information will then be fed into future briefing documents. In terms of including design criteria in the output specification, the Project Team organised three design workshops with the User Group. They were based around the themes of communal facilities, sustainability and internal details; and the objective was to elicit users' aspirations. The workshops considered a number of detailed issues. For example in workshop 1, the aspirations for communal spaces were established, and are almost totally reflected in the output specification checklist (fig. 6) as CABA (2005) had proposed. Most could be classified under fitness for purpose but occasionally, in notions like focal points in lounges, there were signs of higher level attributes such as character.



Figure 1: Plas Y Mor, Burry Port, Swansea, West Glamorgan

The competitive dialogue was planned in three stages:

1. Invitation to submit outline solutions: evaluation reduces 6 bidders to 3 bidders
2. Interim invitation to submit detailed solutions: evaluation reduces 3 bidders to 2 bidders
3. Invitation to submit detailed solutions: evaluation reduces 2 bidders to 1 preferred bidder

Aspects of the designs were discussed with the bidders on a weekly basis but the most significant feedback would be generated through formal Design Evaluation of the proposals at each stage.

4. Survey of Existing Design Quality Evaluation Tools and Analysis of the Design Quality Indicator

4.1 Survey

A survey of existing design quality evaluation tools revealed the following options:

- Design Quality Indicator
 - Achieving Excellence Design Evaluation Toolkit (AEDET)
 - Design Excellence Evolution Process (DEEP)
- Housing Quality Indicator
 - Design and Quality Standards
- Post-occupancy Review of Buildings and their Engineering (PROBE)
- Building Research Establishment Environmental Assessment Method (BREEAM)

The Housing Quality Indicator was devised to assess housing for the general population. It is not intended to cover the specialist requirements for sheltered housing with the exception of the *designated supported housing for older people* (Housing Corporation 2008). The design and quality standards associated with supported housing, state that the core will apply in part, together with additional provisions to housing for older people (Housing Corporation 2007a). Even setting aside these partial provisions and ambiguities, Franklin, (2001) points out that design quality assessment using this tool, is limited to standards and measurement. She adds that unless attempts are made to engage with more interpretative issues, appraisals of housing design will continue to be limited to mechanistic and deterministic formulations, which have led to so many failures in the past. A section on character has been added to the current Housing Quality Indicator, but it represents only 2.5% of the total assessment (Housing Corporation 2007b), and the responses of yes, no or not applicable, appear insufficiently distinctive. Two other assessment methods – PROBE and BREEAM are limited to environmental quantities such as temperature and illuminance; and as its name suggests, the former takes place after construction and not during the design process.

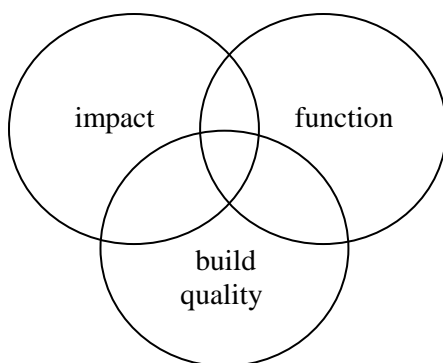
4.2 Analysis

The Design Quality Indicator (DQI) is the only comprehensive method for evaluating the design and construction of new buildings and the refurbishment of existing buildings. There is a general DQI for all building types and a specific one for school buildings (<http://www.dqi.org.uk/>); together with two subsets, AEDET which focuses on hospitals and DEEP, which is exclusively for military housing. During the last part of the 20th Century a new culture of performance measurement started to take hold across the UK Construction Industry. This was epitomised by Rethinking Construction (Egan, 1998). Architects and other design professions affiliated to the Construction Industry Council became concerned that design quality might be relegated to a secondary issue because of the performance-improving agenda, focussed heavily on physical processes. The concern was that a new generation of buildings might be produced where emphasis on measuring and reducing time, cost and waste would lead to a plethora of boring and unattractive designs. The response was the Design Quality Indicator was created explicitly to measure the quality of the design product.

The DQI consists of three elements:

- Conceptual Framework
- Data-gathering Tool
- Weighting Mechanism

The Conceptual Framework is represented as follows:



The justification for this arrangement is to reflect the overlapping qualities. Other models were rejected because they did not account for the interaction between the three aspects shown above. Gann et al. (2003) offer the example of lighting in a building; which can have a functional quality in terms of the lux (lumens per square metre) needed for specific tasks as well as providing pleasure. However, if a hierarchical approach is adopted (fig. 2), lighting does not become the object but a means of satisfying part of fitness for purpose and providing part of ambience. These aspects are quite different and the design criteria for one are not the same as the design criteria for the other. Moreover, amongst others Veitch and Newsham (2000) have shown that fitness for purpose has been well researched, has accepted standards and these standards are generally achieved. Whereas, a quality pilot study undertaken on an existing sheltered home in North Tyneside demonstrated that the choice of lighting was one of the contributory factors to the institutional atmosphere of the interior. Thus, it is not the overlapping nature that is significant but how to add amenity to function.

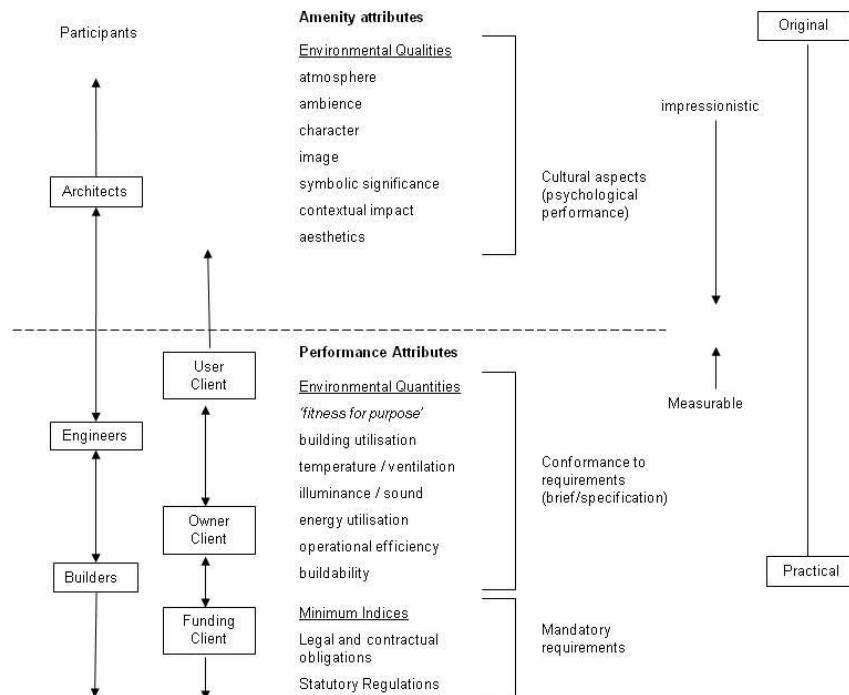


Figure 2: Hierarchical Model for Quality Assessment (Giddings and Holness, 1996)

The Data-gathering Tool in the DQI is essentially a questionnaire that can be used by anybody involved in the design and use of the building. Perhaps not surprisingly, the questions are framed around function, impact and build quality. The respondents are asked to assign a weighting to the importance of each feature; on a scale of strongly disagree to strongly agree. The mechanism uses the priorities that the various stakeholders have set for the building and weights perceptions of design quality against these intentions. Responses to the questionnaire are weighted using a simple formula responding to individual respondents' views on particular attributes in each section of design quality. As the Design Quality Indicator is effectively a questionnaire for individuals' to complete – the weighting reflects individuals' priorities. In the example offered by Gann et al.(2003) (fig. 3) the employers' agent emphasises functionality, budget and let ability. Whereas the hierarchical model (fig. 2) shows that once there has been compliance with the mandatory requirements, functionality is the next priority and quite properly should receive a weighting when it is achieved. However, the greatest weighting should be reserved for designs that additionally provide a sense of place and real well-being for the users, which are achieved by the amenity attributes.

Thus the Design Quality Indicator is not suitable as the basis of the Design Quality Evaluation Tool for three reasons. First, although a mid-design assessment tool has now been introduced; it is not as much about evaluating and developing the designs as completing another generalised questionnaire. Secondly, the conceptual framework does not recognise the significance of a hierarchy of assessment, in which fitness for purpose can be added to the mandatory requirements; and amenity attributes added to fitness for purpose. Each level is more difficult to achieve than the previous one, and this should be reflected in the weighting. Thirdly, with the DQI, the weighting itself is derived from individual respondents' views, some of which are barely related to design quality at all. Whereas, the objective of this research is to establish a shared framework, against which proposals can be assessed and progressed. Thus the Design Quality Evaluation Tool for North Tyneside Council's sheltered accommodation was generated from literature relating to the hierarchical model.

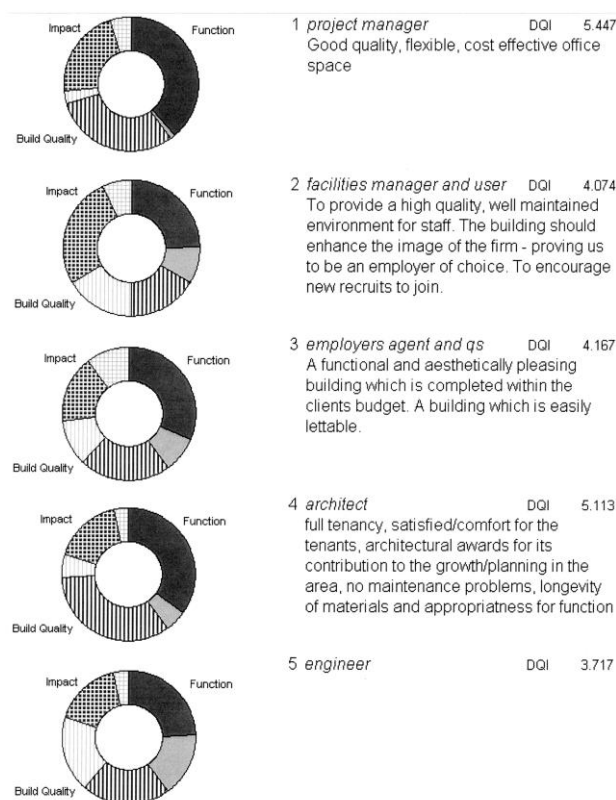


Figure 3: Comparison of different perspectives on design quality (Gann et al, 2003)

5. Development of the Design Quality Evaluation Tool for Sheltered Housing

The tool was developed by the authors of this paper, contemporaneously with the three stages of the competitive dialogue. As none of the existing tools suited the purpose, it was clear that the tool had to be generated from first principles. It was therefore not possible to follow the recommendations that the exact method of bid evaluations should be communicated to the bidders early in the process; although the bidders were clear about the evaluation criteria before each stage.

From the beginning, the importance of the amenity attributes was emphasised. At the presentations by the independent advisers' from Northumbria University in December 2008, the primary objective was to provide supplementary guidance for bidders. Councillors (including the Design Champion) and representatives of the User Group were also present. The presentations focussed entirely on amenity attributes, and were based around people and places. The concepts from these presentations formed the principles for the stage 1 design evaluation: invitation to submit outline solutions. The elements of sheltered housing provided the section headings, and a weighting was allocated to each section, ie:

| | | | | | |
|----------------|-----|--------------------|------|-------------|------|
| External Space | 10% | Communal Spaces | 15% | Apartments | 15% |
| Building Form | 10% | Service Spaces | 10% | User Groups |) |
| Entrances | 15% | Circulation Spaces | 10 % | Innovation |) 5% |

The evaluation for part of the communal spaces section of a sample scheme was set out as follows:

| B14 – New Build – Bidder 1 – evaluation 13 January 2009 – AM,SB,PJ,MS | | | |
|---|--|--|--|
| Element | Positives | Negatives | Clarification |
| grouping of communal spaces | all lounges and main communal areas around central core – accessible from around the building; informal seating areas to split up corridor lengths | | |
| heights in relation to floor space | | | cannot really tell from that provided – seems to be single storey from plans |
| subspaces | cosy feel on the whole - not dynamic as walls fixed, but easy access to gardens and around building | no landscaping indoors so gardens not brought in | changes in levels on site not clear and no information on colours |

Figure 4: Sample from Stage 1 Evaluation Tool

At the same time, as one bidder withdrew, the five remaining bidders presented their outline proposals for one new build and one refurbishment scheme. The presentations were to Officers, Councillors, Advisers and the User Group; but only the nineteen tenants present, were permitted to cast their votes on the projects. An electronic voting system was used, and the response to each question was on a scale of 0-4. Early indications that it was a flawed process revealed themselves almost immediately. The first presentation received the lowest score, and the points increased with each successive presentation. The tenants' voting only carried 2% weighting in the overall evaluation at stage 1, and such a low percentage was strongly criticised at the time. However, as it became increasingly evident that it was a flawed process, the low percentage appeared to be a wise decision. The reasons for inaccurate voting were that the tenants found it difficult to differentiate between the presentation and the content of the projects; and their unfamiliarity with design proposals involved a steep learning curve. The assessment was re-run at the subsequent tenants' workshop, without presentations, using the stage 1 design evaluation tool. On this occasion the outcome mirrored the results from the Project Team's design evaluation group.

By the time of stage 2 design evaluation: interim invitation to submit detailed solutions, the tool had been developed, as shown by the first part of the communal spaces section:

| New Build – Bidder 1 – evaluation 6 May 2009 – AM, SB, PJ, MS | | | | |
|---|--|-------------------------------------|---------------|------------------------|
| Element | Positives | Negatives | Clarification | 2 nd Review |
| Communal Spaces | | | | |
| Orientation | main communal space overlooks the best part of the landscaped areas | main communal space is north facing | | |
| Grouping of communal spaces | communal spaces are well grouped into the central area | | | |
| Heights in relation to floor space | | all single storey height | | |
| Subspaces-double/triple volume; dynamic/cosy, outside/inside-easy access to the outdoor spaces and secure. Bring garden into the building, changes in level and colour | combination of dynamic and cosy elements, with good access to the outside, bringing the garden inside. | | | |
| Provision of communal spaces is very good, however the therapy room, and long travel distance does let it down a little | | | | |

Figure 5: Sample from Stage 2 Evaluation Tool

The stage 1 and stage 2 evaluations were scored by section on a five point scale. By stage 3, both the proposals and the tool are considerably more detailed. This enables each point to be scored on the same scale. In addition, each point will be weighted 0.5, 1.0, 1.5, 2.0, according to its position in the assessment hierarchy (fig. 2) with 1.5 and 2.0 being reserved for amenity attributes. The stage 3 evaluation tool is now ready for its part in the selection of the preferred bidder. Scores will be multiplied by weighting and the totals for each section allocated the same percentages as the earlier evaluations.

| Ref | Statement | Output Specification Requirements (checklist) | Y | Criteria for quality Assessment |
|-----------------------------------|--|--|---|---|
| SECTION E: Communal Spaces | | | | |
| E.01 | rationally arranged within the building and long routes for users minimised (Alexander 1977) (Hertzberger 1998,2000) | Public amenities accessed from the main entrance Alternatively, may be accessed directly from outside with an internal door through to the main entrance area, if the layout and security arrangements permit | x | 1. Grouping as overall strategy (Alexander 1977), Travel distances from the furthest apartment (Littlefield 2008) 2. Relationship with the external spaces, while maintaining the security (Newman 1973) |
| E.02 | subspaces rationally arranged (Alexander 2002) | Appropriate number of DDA compliant toilets provided within 40m of communal spaces and close to main entrance. Baby changing facilities also provided (A minimum of 2 WC's and an assisted bathroom need to be located within communal facilities (approx 12 – 15m²) | x | 1. Use of variety of volumes (Alexander 1977) (Hertzberger 1998) 2. Spatial relationship for different activities (Alexander 1977) 3. Appropriate storage (see guide) 4. Number and size of different facilities e.g. no. of assisted bathrooms, DDA compliant toilets etc.) 5. Sufficiently adaptable to scale of activities |
| E.03 | composed to promote excitement, delight and comfort (Lawson 2001) | Communal living areas shall be sensitively designed to create inviting environments and shall incorporate focal points | x | 1. Composition, volume, views, natural light, colour details etc.(dynamics, vertical links interconnected volumes) (Brown 2001) 2. Easy access to the external spaces by safe and secure means (Pollock et al 2007) (Newman 1973) (Association of Chief Police Officers Crime Prevention Initiatives 2004) |

Figure 6: Sample from Stage 3 Evaluation Tool

The Treasury Taskforce (2007) stated that designs should be consistent with the available budget. The North Tyneside financial model permits immediate comparison of proposals and costs (fig. 7). The detailed appraisal enables cost savings to be identified, which will impact least on design quality.

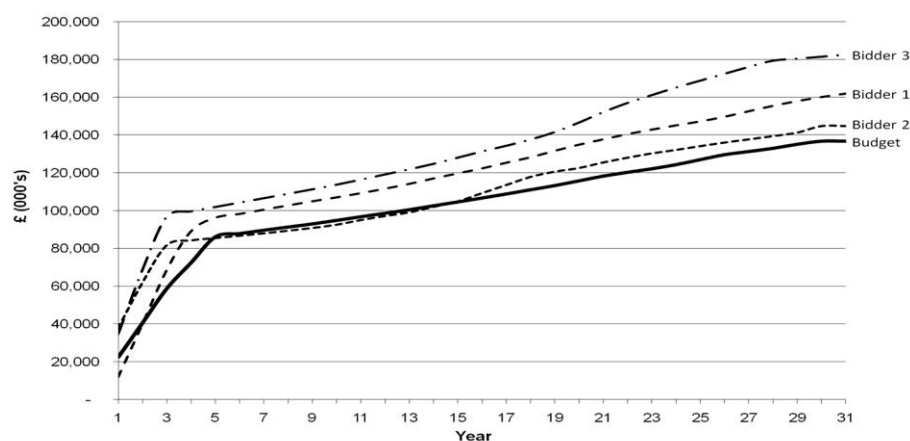


Figure 7: Stage 2 Financial Assessment of Budget and Proposal

Although at stage 2, all three proposals were above the budget, it was considered that Bidder 2 only needed to reduce maintenance and operation costs, as did Bidder 1; who also needed to reduce capital cost without affecting quality. Whereas Bidder 3 exceeded all parts of the budget by too large a margin to proceed to the next stage.

An early criticism of PFI had been that design would be insignificant in the overall assessment; as finance, maintenance, facilities management, operation factors etc., would take precedence. In the North Tyneside evaluation, design actually has the greatest influence of the six criteria, with a weighting of 35%.

1. Novelty and Conclusions

The novelty of this research is in three main areas. First, the competitive dialogue enables bidders to develop their proposals through feedback based on the evaluation tool. Secondly, the engagement of the design champion, independent design advisers and the user group ensures that design quality remains a high priority throughout the selection process; and enables different perspectives to be incorporated. Thirdly, the evaluation tool itself can be used by future project teams without the need for explanatory seminars or approved facilitators, such as those required by the Design Quality Indicator. In addition, it offers objective decision-making in staged selection of proposals, and bidders have observed the unprecedented rigour of the feedback; both in the selection of unsuccessful candidates and improvement in specific aspects of successful designs.

From its inception, the Private Finance Initiative has been criticised for lack of design quality in the buildings that it produced. However, the Government became sufficiently concerned about this deficiency that it encouraged the Commission for Architecture and the Built Environment and the Office of Government Commerce to develop recommendations to improve design quality; although it was greatly assisted by the 2004 EU Directive that enabled authorities to discuss all aspects of the proposals with the bidders. North Tyneside Council was concerned that its new generation of sheltered housing might be criticised in this way, and therefore took the recommendations seriously. Having assessed the existing design quality evaluation tools, it was concluded that none of them suited the PFI selection process. A new tool based on the hierarchical model, was generated mainly from academic literature. It was specifically devised to become increasingly more detailed at each stage. In its stage 3 form, the tool is currently making a significant contribution to the final selection of the consortia, who will undertake this ground-breaking project for the Council. Completion of the buildings and their post-occupancy evaluation are still some way off. In the meantime, there are proposals for introducing variants of the design quality evaluation tool on other building types, and a version for schools is under discussion with another local authority.

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